

IN THE CLAIMS:

1. (Currently Amended) A process for the laser beam machining, especially laser beam welding, of components (14), especially body parts, the process comprising:

providing with a remote laser head (3), which is guided by :

guiding the laser head with a manipulator (5) with a multiaxial manipulator hand (7);

5 characterized in that

during welding or cutting, guiding the emitted laser beam (12) is guided along [[the]]
a welding path (19) on the component (14) by orientation modifications and with a variable
irradiation angle β , where the changes in the orientation of the laser beam are generated only
by pivoting motions of the manipulator hand (7) about at least one of the hand axes IV, V, VI

10 thereof.

2. (Currently Amended) A process in accordance with claim 1, characterized in that
wherein the laser beam (12) emitted to the component (14) is not aligned with the a last hand
axis VII.

3. (Currently Amended) A process in accordance with claim 1 or 2, characterized in
that wherein the manipulator (5) is at rest during machining, welding or cutting with its three
other said axes I, II, III.

4. (Currently Amended) A process in accordance with claim 1; 2 or 3, characterized

~~in that wherein~~ the focus (22) of the laser beam (12) is moved during welding or cutting on a shell path (20) about [[the]] ~~an~~ intersection (9) of [[the]] ~~several of the hand axes IV, V, VI.~~

5. (Currently Amended) A process in accordance with claim 1 one of the above claims, characterized in that ~~in that wherein~~ the focus (22) of the laser beam (12) is adjusted in the direction of the beam during welding or cutting.

6. (Currently Amended) A process in accordance with claim 1 one of the above claims, characterized in that ~~in that wherein~~ the laser beam (12) is emitted from a remote laser head (3) arranged externally on the manipulator hand (7).

7. (Currently Amended) A process in accordance with claim 6 one of the above claims, characterized in that ~~in that wherein~~ the remote laser head (3) is guided by means of an extension arm (4) at a spaced location from the manipulator hand (7).

8. (Currently Amended) A process in accordance with claim 2 one of the above claims, characterized in that ~~in that wherein~~ the remote laser head (3) is held with an orientation in which the emitted laser beam (12) is directed at right angles to the last hand axis VI.

9. (Currently Amended) A process in accordance with claim 1 one of the above claims, characterized in that ~~in that wherein~~ the remote laser head (3) is attached directly to the manipulator

hand (7) such that the emitted laser beam (12) intersects the intersection of the several of the
hand axes IV, V, VI.

10. (Currently Amended) A process in accordance with claim 1 one of the above
claims, characterized in that wherein a remote laser head (3) with a rigid-angle focusing optical
system (21) is used.

11. (Currently Amended) A process in accordance with claim 1 one of the above
claims, characterized in that wherein a remote laser head (3) with a fixed focal length of
preferably 500 mm to 1,500 mm is used.

12. (Currently Amended) A process in accordance with claim 1 one of the above
claims, characterized in that wherein the laser output is adjusted during welding as a function
of the changes in the orientation of the laser beam (12).

13. (Currently Amended) A process in accordance with claim 1 one of the above
claims, characterized in that wherein the velocity of welding or cutting is adjusted during
welding as a function of the irradiation angles β of the laser beam (12).

14. (New) A process in accordance with claim 1, wherein a remote laser head with an
optical system adjustable in the manner of a zoom lens is used.

15. (New) A process for the laser beam welding of vehicle body parts, the process comprising:

providing a manipulator with robot basic axes and a manipulator hand having hand axes;

5 providing a remote laser head;

guiding the laser head with the manipulator hand;

during welding guiding the motion of the hand to move the laser beam along a welding path on the vehicle body part by orientation modifications and with a variable irradiation angle β , where the changes in the orientation of the laser beam are generated only by pivoting motions of the manipulator hand about at least one of the hand axes.

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16. (New) A process in accordance with claim 15, wherein the laser beam emitted to the part is not aligned with a last hand axis of the hand axes.

17. (New) A process in accordance with claim 16, wherein the manipulator is at rest during welding with there being no movement about the robot basic axes during welding.

18. (New) A process in accordance with claim 15, wherein the focus of the laser beam is moved during welding on a shell path about an intersection of several of the hand axes.

19. (New) A process in accordance with claim 15, wherein the focus of the laser beam is adjusted in the direction of the beam during welding.

20. (New) A process in accordance with claim 14, wherein the laser beam is emitted from a remote laser head arranged externally on the manipulator hand and further comprising guiding the remote laser head using an extension arm at a spaced location from the manipulator hand.